

XVIII Turība University Conference

**COMMUNICATION IN THE GLOBAL VILLAGE:
INTERESTS AND INFLUENCE**

Rīga, 18 May 2017

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Turība University

Telephone: +371 67622551,

e-mail: turiba@turiba.lv

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Head of the Publishing House Daiga Rugāja

e-mail: izdevnieciba@turiba.lv

Exploring model-driven domain analysis for software engineering

Modeļu vadāma domēna analīze programminžinijā

Ivars Namatēvs, MBA, Mg.sc.ing., Turība University, Latvia

Keywords: Software engineering, Model Driven Domain Analysis, Business Process Modelling Notation, Unified Modelling Language, code generation.

Any given organization operates via business processes. These processes have constantly evolved, become more complex, and without using agile methodology and business process modelling cannot improve the efficiency and effectiveness of business continuity planning of an organization. At the same time, we are seeing how new technologies are enabling business process improvements and innovation. Model Driven Domain Analysis (MDA), software Model Driven Development (MDD) and Computer Aided Software Engineering (CASE) methods through comprehensible architecture and by clear defined functions are on the horizon of enabling the next leap in business process innovation and can be used to create value for the organizations.

There's no question that the use of MDA and other software MDD techniques is spreading rapidly. Current researches in Software Engineering found that little more than half the developers claimed to be using MDD to drive development through some level of code generation.

The research presents an agile methodology using Business Process Modelling Notation 2.0 (BPMN) and Unified Modelling Language 2.0 (UML) for code generation. The use of Topological Functional Model (TFM) methods, functional and topological features switching from knowledge model to business model was used.

It is known that agile approaches and extreme programming speeds up the development of small projects where small teams in face to face contact are quite effective. This methodology allows for a more organic approach to business continuity where business process owners and software developers collaborate and leverage proven agile and test driven techniques. Although, agile approaches are a positive innovation for small projects, they are sometimes disputable for large systems.

The experimental study has divided the given process and later code generation into two courses. First, by using BPMN 2.0 functional features of the library as a visual approach to produce Java code within Enterprise Architecture. The business process was created by Camunda Modeller (installing Eclipse Kepler, Maven for Eclipse, Camunda Archetypes Eclipse and Camunda Project). Second, transformation of the business process model by using Query View Transformation (QVT) standard and Managed Object Format (MOF) metamodeling architecture.

The results indicate that there is still work to be done around achieving successful outcomes from software development projects. The software development is still with low effectiveness and quality; it is primitive because of chaos during the development process. Since BPMN and UML model business processes and business continuity, it is a good way to document the organizations' activities easily with simple graphical documentation and provide a simulation of how the process functions under various situations.